What is claimed is:

1. An attitude determination and control system for a spacecraft comprising:

a unified attitude sensor set that is adapted for use during all phases of spacecraft operations;

a processor capable of determining and controlling attitude of said spacecraft during said operations using sensor inputs from the unified attitude sensor set.

2. The attitude determination and control system of claim 1, wherein the unified attitude sensor set includes at least one star tracker.

3. The attitude determination and control system of claim 2, wherein the spacecraft is maneuvered at a rate that is within the star tracker tracking rate limit.

4. The attitude determination and control system of claim 2, wherein star tracker data is used at least in part to determine spacecraft rate.

5. The attitude determination and control system of claim 2, wherein star tracker data is used at least in part to determine spacecraft attitude.

6. The attitude determination and control system of claim 2, wherein the unified attitude sensor set further includes at least one inertial measurement unit.

7. The attitude determination and control system of claim 6, wherein the inertial measurement unit is a gyro device.

8. The attitude determination and control system of claim 7, wherein the gyro device is used at least in part to determine spacecraft rate.

9. The attitude determination and control system of claim 7, wherein the gyro device is used at least in part to determine the spacecraft attitude.

10. The attitude determination and control system of claim 7, wherein the star tracker data is used at least in part to determine the spacecraft attitude.

11. The attitude determination and control system of claim 7, wherein the star tracker is used to calibrate the gyro device.

12. The attitude determination and control system of claim 2, wherein the unified attitude sensor set further includes a solar panel current sensor.

13. The attitude determination and control system of claim 12, wherein the solar panel current sensor is used at least in part to position the spacecraft body for power safety after loss-of-attitude.

14. The attitude determination and control system of claim 12, wherein the solar panel current sensor is used at least in part to position the solar wing for power safety.

15. The attitude determination and control system of claim 12, wherein the solar panel current sensor is used to validate an acquired stellar attitude.

16. The attitude determination and control system of claim 1, wherein the spacecraft operations include at least transfer orbit operations and on-station operations.

17. The attitude determination and control system of claim 16, wherein the transfer orbit operations include a bi-propellant transfer orbit operation.

18. The attitude determination and control system of claim 16, wherein the transfer orbit operations include an electrical propulsion transfer orbit operation.

19. The attitude determination and control system of claim 18, wherein the electrical propulsion transfer orbit operation is performed using a XIP engine.

20. The attitude determination and control system of claim 18, wherein the electrical propulsion transfer orbit operation is performed using a Hall Effect Thruster.

21. The attitude determination and control system of claim 1, wherein the processor includes electronic hardware.

22. The attitude determination and control system of claim 1, wherein the processor includes software.

23. The attitude determination and control system of claim 1, wherein the spacecraft has its solar wings stowed.

24. The attitude determination and control system of claim 1, wherein the spacecraft has its solar wings deployed.

25. A method of determining and controlling attitude of a spacecraft during both transfer orbit and on-station operations, the method comprising:

reading data from a unified sensor set during transfer orbit operations and on-station operations; and

processing the data to control spacecraft attitude using a single type of controller during both transfer orbit operations and on-station operations.

26. The method of claim 25, wherein said single type of controller is a 3-axis stabilized controller.

27. An attitude determination and control system for a spacecraft comprising:

a plurality of star trackers adapted for use during all phases of spacecraft operations;

a processor capable of determining and controlling attitude of the spacecraft during the spacecraft operations using inputs from the star trackers.

28. The attitude determination and control system of claim 27, wherein the spacecraft operations include transfer orbit operations and on-station operations.

29. An attitude determination and control system for a spacecraft comprising:

a plurality of star trackers and gyro units that are adapted for use during all phases of spacecraft operations; and

a processor capable of determining and controlling the attitude of the spacecraft during the spacecraft operations using inputs from the star trackers and gyros as the attitude sensor data.

30. The attitude determination and control system of claim 29, wherein the spacecraft operations include transfer orbit operations and on-station operations.

31. An attitude determination and control system for a spacecraft comprising:

a plurality of star trackers, gyro units and solar wing current sensors that are adapted for use during all phases of spacecraft operations; and

a processor capable of determining and controlling the attitude of the spacecraft during the spacecraft operations using inputs from the star trackers, gyro units and solar wing current sensors as the attitude sensor data.

32. The attitude determination and control system of claim 31, wherein the spacecraft operations include transfer orbit operations and on-station operations.

33. A spacecraft comprising

a set of star trackers for attitude determination and control; and

a processor that uses inputs from the set of star trackers to determine and control the attitude of the spacecraft;

wherein star trackers used for on-station attitude determination and control are used as the attitude sensor during transfer orbit operations.

34. A spacecraft mission plan, comprising;

transfer orbit operations and on-station operations;

wherein at least one portion of the mission plan includes use of a star tracker as part of the attitude sensors for attitude determination during both transfer orbit operations and on-station operations.